CRED MARK 2
2-4 & 2-6

USER MANUAL

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CRED MARK 2

The information contained within this manual does not include all of the details of design, production or variations of the equipment. Nor does it cover every possible situation that may arise during installation, operation or maintenance. If you need particular assistance beyond the scope of this manual please contact our technical staff.

CAUTION

RISK OF ELECTRIC SHOCK DO NOT OPEN

WARNING! RISK OF HAZARDOUS ENERGY!

TO REDUCE RISK OF ELECTRIC SHOCK OR FIRE DO NOT EXPOSE TO RAIN OR MOISTURE.

NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

UNIT MUST BE EARTHED AND CORRECTLY FUSED.

Magnetic Field - Caution

If an equipment rack is to be used, we would recommend mounting the amplifiers in the bottom of the rack and mounting pre-amplifier and other sensitive equipment such as the Cred Mk2 at the top of the rack.

Do not locate sensitive high-gain equipment such as pre- amplifier or tape decks directly above or below amplifiers.

Because amplifiers have a high power density there is a strong magnetic field which can induce hum into unshielded devices that are located nearby. The field is strongest just above and below the unit.

The lightning bolt triangle is used to alert the user to the presence of un-insulated "dangerous voltage" within the unit that may constitute a risk of electric shock.

The exclamation mark triangle is used to alert the user to important operating or maintenance instructions in the literature accompanying the product.

CE

CE Conformity

This equipment has been tested and found to conform to the requirements of the EMC Directive 89/336/EEC, the requirements of the Low Voltage Directive 73/23/EEC, amended by 93/68/EEC and to the following standards:

EMC Emission	EN55103-1 (1996)
EMC Immunity	EN55103-2 (1996)
Electrical Safety	EN60065 (1998)

Features

- Linea Research minimal signal path design
- Sonically superb ADC/DAC combination; a carefully matched pairing of the best devices from Burr Brown and Wolfson
- Newly released family of Analogue Devices SHARC DSP
- Extended bandwidth; 96kHz sampling frequency provides for a nominally flat response to 40kHz.

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INTRODUCTION

Congratulations on having purchased an **OHM CRED Mark 2**

Please read this manual and familiarize yourself with the operation of your **OHM CRED Mark 2** before you attempt to power up the unit. For your own safety we recommend you take the time to read all the warnings and precautions on the page opposite and study the connection details to ensure correct usage and avoid any misuse which may invalidate your warranty.

Record the serial number, found on the back of the unit, in the spaces designated on the warranty card, and in the space provided below. Refer to the model and serial numbers whenever you call your dealer for information or service on this product.

Model	**Serial Number**

The OHM CRED mark 2 series of loudspeaker management systems represent the current state-of-the-art. Taking advantages of the latest advances in analogue to digital conversion and digital signal processing technologies the units achieve performance levels that have only recently been made possible.

This modern design is combined with OHM Factory Presets to deliver the optimal match for OHM cabinets and systems. These presets allow the user to simply achieve the best possible

Unpacking

Carefully open the shipping carton and check for any noticeable damage.

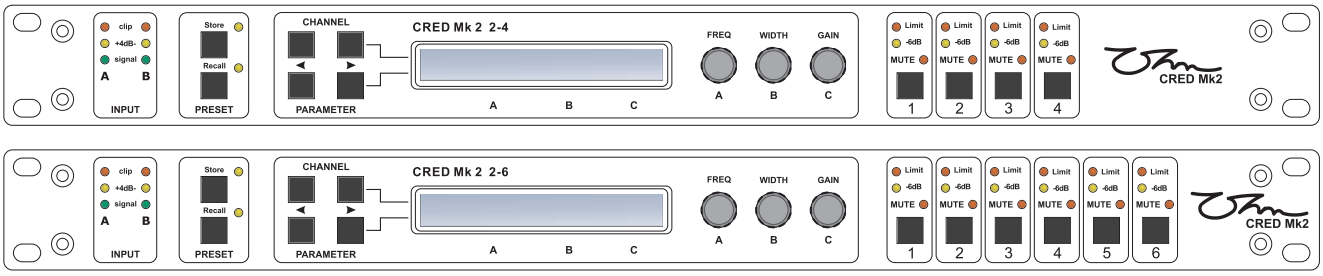
Every **OHM CRED Mark 2** has been rigorously tested and inspected before being carefully packaged, prior to shipping. If any damage has occurred to the packaging or the unit during transit, please notify the delivery company as soon as possible. Only the consignee can file a claim against the carrier for shipping damage. Be sure to save the carton and all packing materials for the carriers inspection.

We recommend that you retain the original carton and packing materials for use should you transport or ship the unit in future.

Precautions

- Retain this manual for future reference.
- Do not stand the unit vertically on it's rear.
- Always check the correctly rated power is supplied to your unit.
- Avoid direct contact of your **CRED** with water or other liquids.
- Do not operate while standing in liquid.
- When cleaning the unit, wipe with a soft, dry cloth. If more heavy duty cleaning is required, disconnect from the mains and use a damp cloth, ensuring the unit is completely dry before reconnecting to the mains.
- Do not use solvents or chemicals on the exterior of the unit as they cause the surface to discolour or peel.
- Do not use if the power cord is frayed or broken.
- If you experience continuous problems disconnect from the mains and refer to a qualified service engineer.
- This unit is only intended for qualified personnel to operate and install. Do not attempt to repair or service yourself. Please refer to qualified technical service department. The user must have sufficent electrical contact to earth. Electrostatic charges may effect the operation of the **CRED**.

Quick Reference



Display

The LCD Displays preset and parameter information. The default screen is shown after start up and displays the number of the current preset on the lower line of text. When navigating around the adjustable parameters, other information is shown.

Channel Select Buttons

The currently selected input or output channel is shown in the top left corner of the display. Pressing the channel select buttons scrolls through the available inputs and outputs. If operating stereo linked the channel pair is shown. For example 'CH A+B' means both input A and B parameters.

Edit Select Buttons

The name of the edit parameter page is displayed in the bottom left portion of the LCD. Pressing the edit select buttons moves through the available parameter pages for the current input or output.

Parameter Knobs

Up to three parameters are shown on the display. The parameter name is shown with its' current value below. Where appropriate, parameters are grouped according to function. For example the parametric equalisation page shows centre frequency, width and gain. Turning a parameter knob clockwise will increase the value of a parameter, turning anti-clockwise will decrease it. Turning a knob rapidly will cause the action to 'accelerate', so the value changes more rapidly.

Mute Buttons

The LEDs next to the mute buttons indicate their current status. Pressing a mute button toggles between the mute on and off.

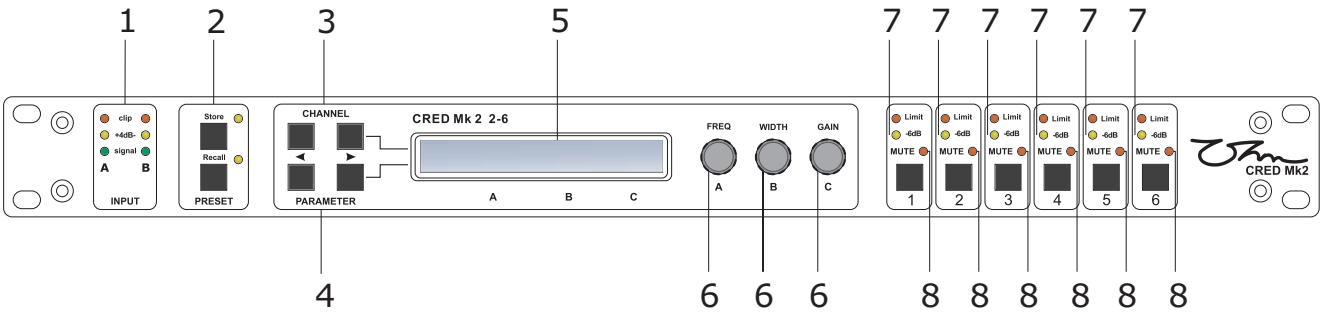
Store Button

The unit has 45 preset locations. To store a preset in a location, press the store button and use the parameter knobs to select the preset location and name the preset. Pressing the store button again completes the task. Pressing any button other than store during the process cancels the procedure.

Recall Button

To recall a preset, press the recall button and use parameter knob A to select the required preset. Pressing the recall button again will activate the preset. You will then be asked to confirm by pressing recall once more. As with the store function, pressing any button other will cancel the process.

Front Panel



1 Input Signal Indicators

A set of three pairs of LEDs indicate signal present, +4dBu and input clip for each channel. The signal present LEDs operate at approximately 40 dBu, giving a useful indication of even relatively low input signal levels. The +4 dBu LEDs are intended to show nominal operating level and can also be useful for setting system gain structure. Clip LEDs warn the user of input overload and operate at +19 dBu.

2 Preset Store and Recall

These controls provide access to the 45 presets stored within the device. Pressing the store button allows the user to name a preset and choose which memory location it will be held in. Pressing store button again completes the process. The Recall function operates in a similar way, pressing the recall button allows the user to select which preset they require, pressing the button for a second time, then confirming, recalls the new DSP settings.
Note that presets cannot be stored or recalled when Secure mode is activated.

3 Channel Select Buttons

The currently selected channel is displayed on the top left hand corner of the LCD. Pressing the channel buttons scrolls through the available input and output channels and finally through the utility functions and back to the default screen. If operating a stereo linked preset, the channel name will indicate the channel pairing. For example 'A+B' means both input A and B parameters. The name of the output will be shown briefly at the top of the display when stepping onto an output.

4 Edit Select Buttons

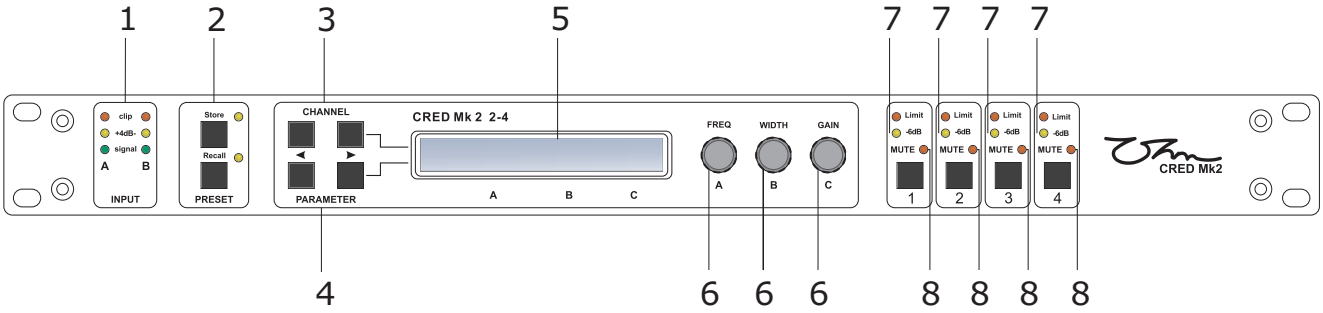
The currently selected edit parameter page is displayed on the bottom left corner of the LCD. Pressing the edit select buttons moves through the available parameters for the current input or output.

5 Text Display

Preset, channel, parameter and status information is shown on the 2x 24-character text display. In most screens the currently selected channel is displayed on the upper line and the edit parameter on the lower line. To simplify the display and enhance security, some parameters or parameter pages are omitted when not relevant.

6 Parameter Knobs

Three velocity sensitive parameter knobs are used to adjust parameters shown on the display. Up to three parameters at a time are displayed on the screen. The parameter name is shown above the parameter value in each of the three screen sections. The parameter knobs have a fixed association with the screen sections; the rightmost parameter knob adjusts the rightmost parameter and so on.



7 Output Signal / Limiter Indication

Two LEDs are provided for each output channel. These show the signal level relative to the limiter threshold. The yellow LED will light when the signal is 6dB below the threshold and the red

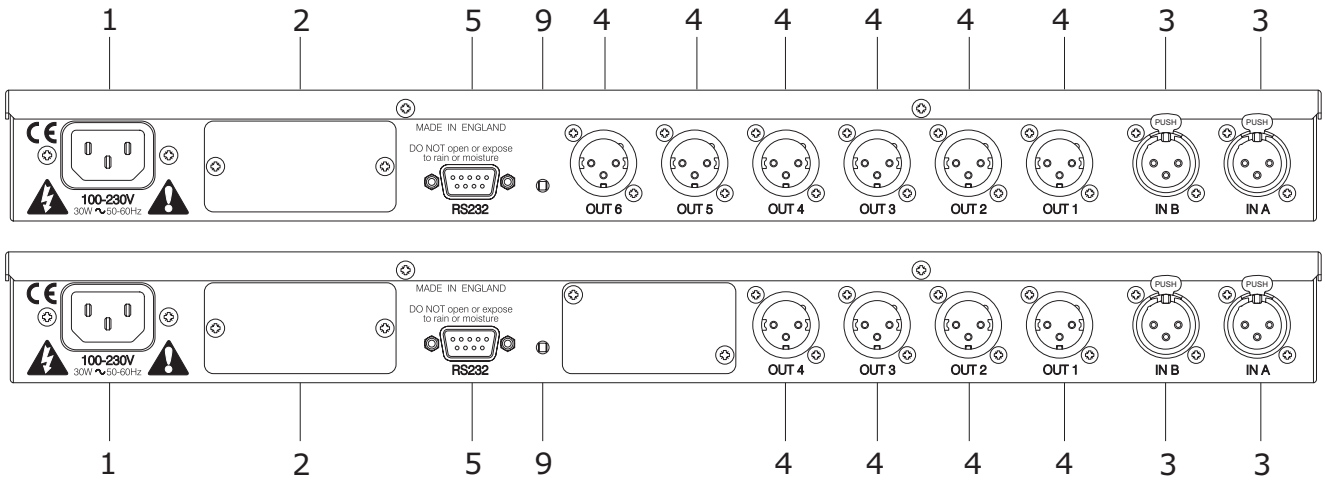
8 Mute Buttons and Status LEDs

Each output has a mute button and associated status LED. Pressing the button toggles the mute on and off. *Note that the mute buttons do not function when the Secure mode is activated.*

9 Secure Button (on the rear)

A momentary button is fitted behind the rear panel, between the output XLRs and the RS232 port. When activated, this will disable all the front panel controls so they cannot affect the signal path, making the unit secure against tampering. When in secure mode, the indicators still operate normally. Note that the communications port is still active in secure mode.

Rear Panel



1 Power Inlet

The OHM CRED series unit should be connected to a suitable mains electricity supply using the cable supplied. The processor has a switch mode power supply that is capable of operating with a nominal mains voltage of 85V to 240V, 50/60Hz without re-configuration.

2 Network Expansion Port

This allows for a network card to be fitted.

3 Audio Input Connectors

All audio connections are fully balanced and wired pin-1 ground, pin-2 hot & pin-3 cold. The two inputs have pin-1 connected directly to the chassis and feed the signal processing chains. If an unbalanced source is used, a connection should be made between the pin-3 'cold' signal and the

4 Audio Output Connectors

The processed outputs are impedance balanced, and wired pin-1 ground, pin-2 hot and pin-3 cold. An unbalanced input may be driven by connecting pin-3 'cold' signal to the ground connection of the unbalanced destination input. Note that output pin-1's are ground lifted at audio frequencies but connected to ground at RF for good EMC performance. The intention being that the amplifiers the processor is driving should be responsible for the grounding of their input cable shields.

5 Communications Port Connector

A CRED processor may be controlled entirely from another controller, typically a Personal Computer, running an application that is compliant with the ObCom standard. Connection will normally be made to the controller via this serial port connector. This port is also used for updating the firmware in the unit.

Note that the communications port is NOT disabled when the front panel is made secure using the secure button.

Operation

Starting up

The unit will energise as soon as power is applied to the IEC inlet; there is no power switch. During the start up process the firmware application model number and version numbers are displayed and the outputs are muted until the unit has completed its internal checks. Once the start-up routines are complete and the unit is ready to pass audio. The DSP signal path will be restored to the current settings when it was last powered down and the audio signal is gradually ramped up to its correct level.

Selecting a Factory Preset

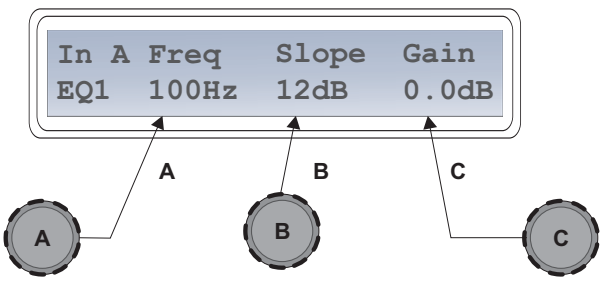
The CRED series processors have a library of *Factory Presets* designed to suit a range of OHM enclosures.
Factory Presets contain some parameters that are fixed and hidden from view; the remainder of the DSP parameters are available for user manipulation. The number and type of hidden parameters is dependant on the *Factory Preset*, typically crossover frequencies, output delay and some EQ's are hidden; those settings that are a function of the loudspeaker cabinet design and should not require adjustment for different applications.
To recall a *Factory Preset* for a particular cabinet or system, press Recall and use the left hand parameter knob A to scroll through the available factory preset locations (as indicated by a box symbol after the preset number). Once the appropriate preset has been selected press recall again, at which point you will be asked to confirm the action by pressing recall for a third time. This is to guard against accidental recall of Presets.
Factory Presets are locked so they cannot be over-written. The user can, however, store an edited version of a Factory Preset in any free preset location.
Details of all the Factory Presets including output designations can be found in Appendix A.

Creating a Crossover

In addition to the *Factory Presets* the unit has two further *'Base Presets'*; mono and stereo. These *Base Presets* are stored in locations 1 and 2 respectively, they can be used to develop settings for any loudspeaker combination and are recalled in the same way as the *Factory Presets* described above. These Presets are also locked but the user can name and store their own edited versions in any free preset location.

Navigation and Viewing Parameters

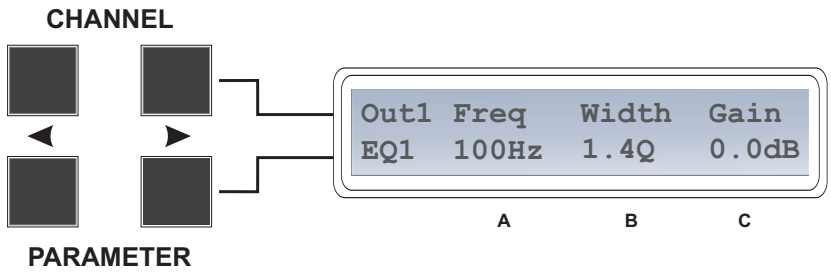
Many of the processing elements in each input and output path have features that may be controlled by the user, such as gain, frequency or limiter threshold. We call these adjustable features parameters



A parameter may be adjusted when it is displayed by turning one of the three-parameter knobs. Each of the three-parameter knobs is associated with a zone on the display. Adjusting the leftmost parameter knob will change the value of the parameter showing in the leftmost zone of the display and so on. Turn a knob clockwise to increase the value of a parameter, or anti-clockwise to decrease it. The knobs are velocity-sensitive so turning a knob rapidly will cause the action to 'accelerate', so the value changes more rapidly.

Navigation

The DSP parameters are organised by channel. The currently selected channel is shown in the top left hand corner of the display. You can navigate between the channels by pressing the channel buttons. Pressing the channel buttons will scroll through the channels, utilities and back to the default screen. When using a Preset that is stereo linked, the channel selection will reflect this. For example '1&4' indicates outputs 1 and 4. When navigating onto an output channel, the usage of the output, as define in the factory preset, will be shown briefly at the top of the screen.



Pressing the edit navigation buttons gives access to the various pages of parameters available for each channel. The currently selected page is shown in the bottom left hand corner of the display, this is omitted on some pages where the function is obvious. The screen shows up to three (normally related) parameters for a given part of the processing functions on a given channel.

The edit buttons allow you to scroll, in either direction, through the different processing pages for a given Channel. When you go past the last page, you will be returned to the default page.

The channel buttons allow you to scroll, in either direction, through the input and output channels, whilst trying to maintain the currently viewed processing block. If the channel you scroll to does not have the currently viewed processing block, the next one will be shown instead.

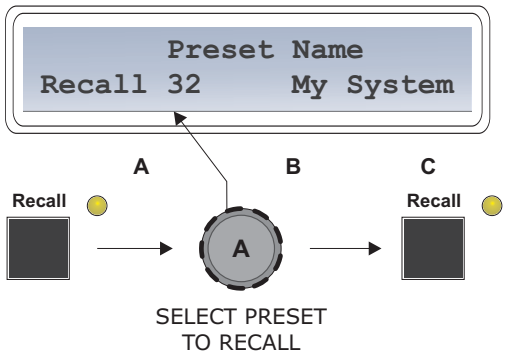
NB. When the unit powers-up, the settings will be the same as those when the unit was last switched off.

Presets

The device contains a total of 45 user and *Factory Presets*. The user cannot overwrite the basic mono, basic stereo or *Factory Preset* programs.

Preset Recall

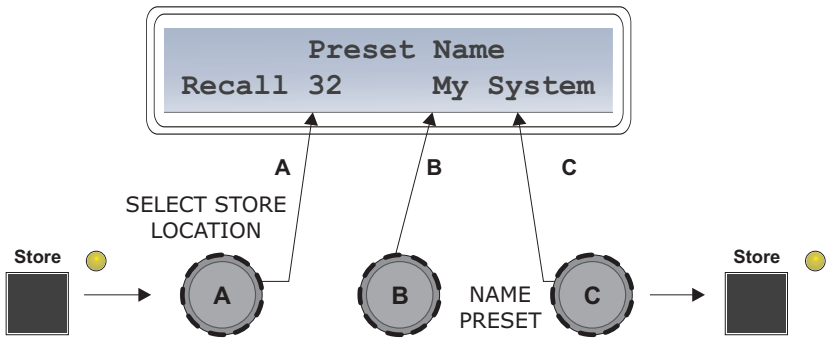
To select an existing Preset, press the Recall Button so the indicator above it illuminates. Turn parameter knob A until the required Preset number is shown on the display. Factory presets are indicated by a box symbol appearing after the preset number. Press the Recall Button again to activate the Preset. Pressing any other button will cancel the operation.



Users can develop their own Preset based on one of the basic or *Factory Presets* stored within the device. Once a basic or user Preset has been recalled, a user has complete freedom to adjust any or all of the parameters. *Factory Presets* can be used as the basis for user Presets but they have some parameters that are predefined as a function of the loudspeaker system. These parameters are 'hidden' from the user, as they should be constant regardless of application.

Preset Store

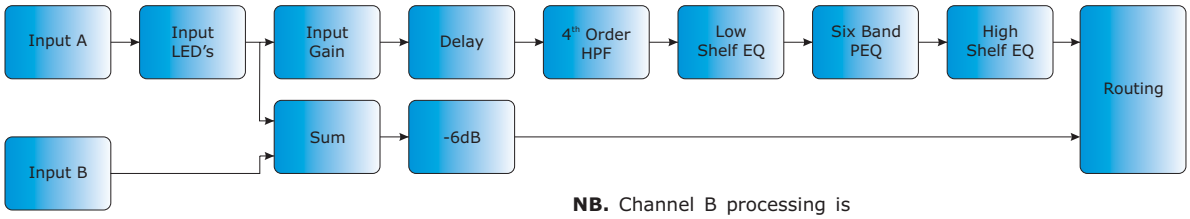
To store the current Preset in a user location, press the Preset Store Button so the indicator above it illuminates. Turn the first parameter knob until the required Preset location number is show on the display. A Preset name of up to 12 characters in length can be entered using parameter knobs B and C. Pressing the Store Button again completes the process and stores the Preset. As with Preset Recall, pressing any other button cancels the operation.



The user can overwrite non-protected Presets only; if an attempt is made to save a Preset in a location already occupied by a basic or *Factory Preset* a 'LOCKED PRESET' message is displayed.

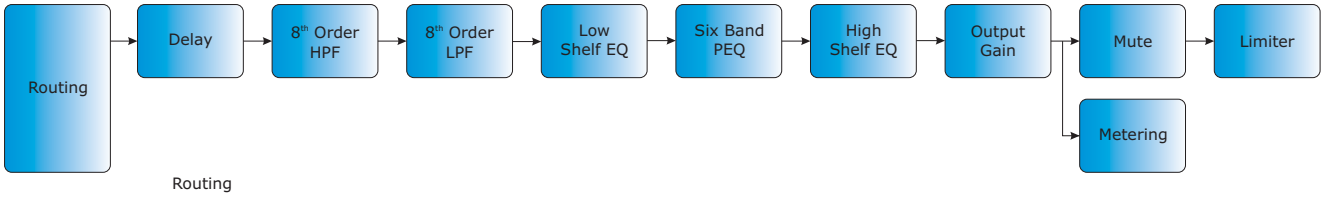
DSP Processing layout

Input DSP block diagram



NB. Channel B processing is Identical to Channel A but for clarity it is not shown

Output DSP block diagram



Routing

Stereo / Mono Formats

Stereo / Mono Formats
There is only one 'standard' layout of the processing blocks, but flexible routing and control linking allows this layout to be adapted to a wide variety of applications.
There are two 'Formats', Mono or Stereo. With the Mono format, all outputs have unique parameter settings, and all outputs are identical in terms of processing functions and routing capability. This is the most flexible Format.
Stereo format pairs the inputs and outputs for stereo operation, the parameters of each member of the pair being identical. The routing of inputs to outputs is fixed. This format is intended for symmetrical stereo operation, eliminating the need to make identical parameter adjustments for each channel.

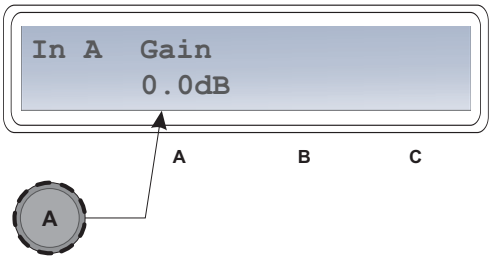
The channel pairing is:

- Left and Right Inputs
- Outputs 1 (routed from L input) and 3 (routed from R input) [1 and 4 for CRED 2-6]
- Outputs 2 (routed from L input) and 4 (routed from R input) [2 and 5 for CRED 2-6]
- [Outputs 3 (routed from L input) and 6 (routed from R input) - CRED 2-6 only]

DSP processing

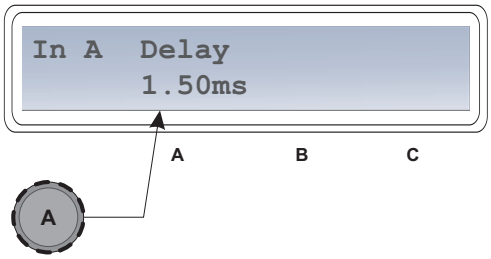
Input Channels

Gain



- Knob A: Gain, adjustable in 0.2dB steps from -80dB to +20dB

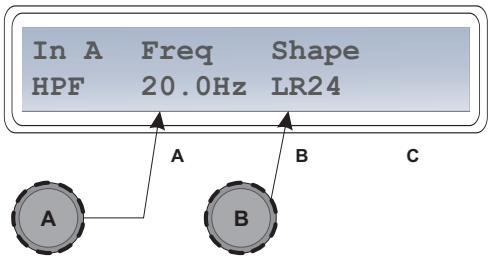
Delay



- Knob A: Delay, adjustable in variable steps from 0 to 400ms

The delay parameter is adjustable in fine steps at low values; the adjustment becomes progressively coarser as the value increases. The velocity sensitive Parameter Knobs therefore provide accurate setting of driver offset delays (typically below 10ms) and rapid setting of longer system alignment delays.

High Pass Filter



- Knob A: Gain, adjustable in 0.2dB steps from -80dB to +20dB
- Knob B: High Pass Filter type

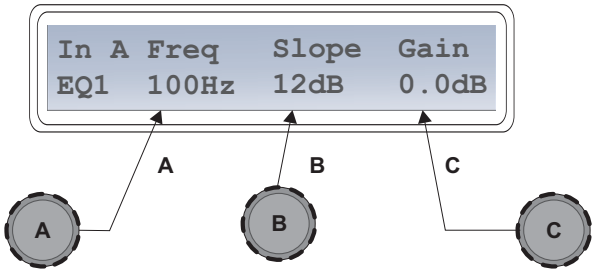
System high pass filtering is provided for the input signal. This is the preferred location for high pass filtering as it affects all outputs and can therefore improve inter-band phase relationships. Filter type is selectable from Butterworth, Bessel, Linkwitz-Riley and Hardman. Filter slopes of up to 4th order or 24dB / octave are provided. Not all filter types are available in all slopes. For example 18dB / octave Linkwitz-Riley filters do not exist.

The Hardman type filter is always described by its' order as the filter becomes progressively steeper rather than following a linear slope so a dB/octave description is not accurate.

Parametric Equalisation

Eight sections of equalisation are provided, two shelving filters and six fully variable parametric sections. define in the factory preset, will be shown briefly at the top of the screen.

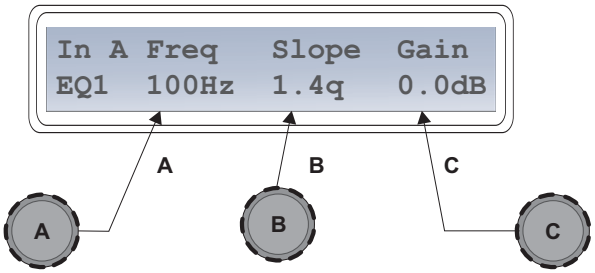
High and Low shelving filters



- Knob A: Frequency, 10.0Hz to 25.6kHz in variable steps
- Knob B: Slope, 6 to 12dB / octave in 1dB steps
- Knob C: Gain, +/-15dB in 0.2dB steps

The frequency is specified as point where the filter deviates by 3dB from the gain value.

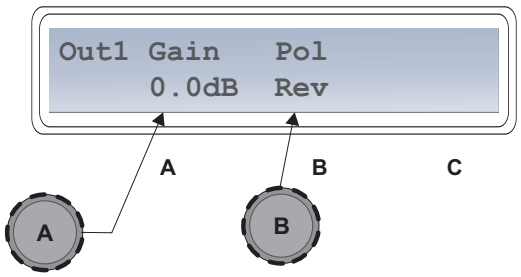
Parametric Filters



- Knob A: Centre Frequency, 10.0Hz to 25.6kHz in variable steps
- Knob B: Width, display selectable, Q or BW (Bandwidth)
  BW adjustable from 0.05 to 5 octaves in variable steps
  Q adjustable from 14.2 to 0.2 in variable steps
- Knob C: Gain, +/-15dB in 0.2dB steps

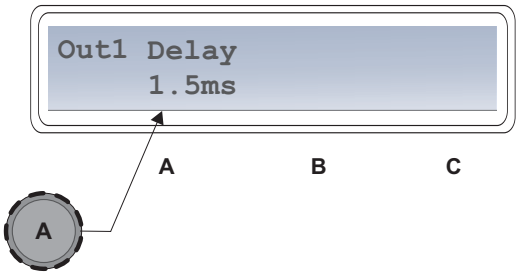
Output Channels

Gain and Polarity



- Knob A: Gain, +/-15dB in 0.2dB steps
- Knob B: Changes polarity from Norm/Rev

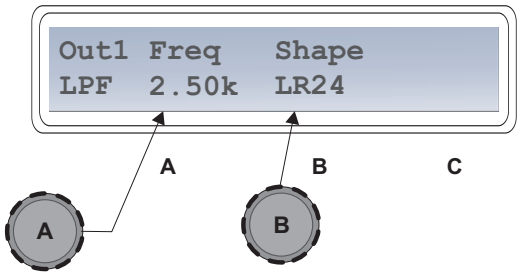
Delay



- Knob A: Adjustable in variable steps from 0 to 80ms

As for input delay, velocity sensitive Parameter Knobs provide finer adjustments at low levels and rapid selection of higher values.

High and Low Pass Filters

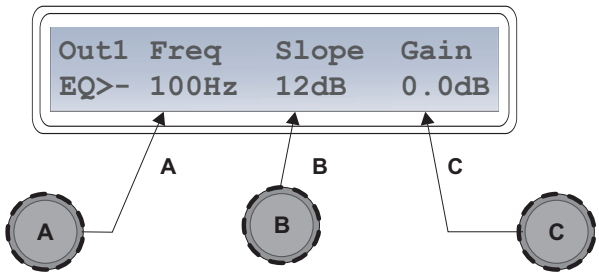


- Knob A: Frequency,<<out, 10.0Hz to 25.6kHz,out>>
- Knob B: Filter type

Filter type is selectable from Butterworth, Bessel, Linkwitz-Riley and Hardman. Filter slopes of up to 8th order or 48dB / octave are provided. Not all filter types are available in all slopes. For example 18dB / octave Linkwitz-Riley filters do not exist.
The Hardman type filter is always described by its' order as the filter becomes progressively steeper rather than following a linear slope so a dB/octave description is not accurate.

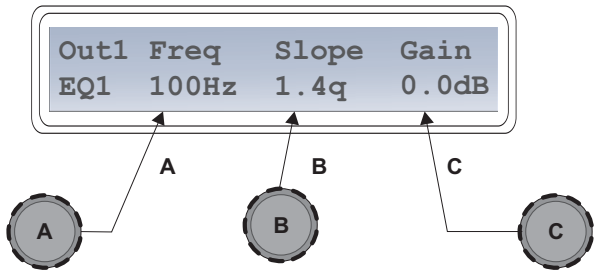
Parametric Equalisation

Eight sections of equalisation are provided in a similar format to the input channel equalisation; two shelving filters and six parametric.



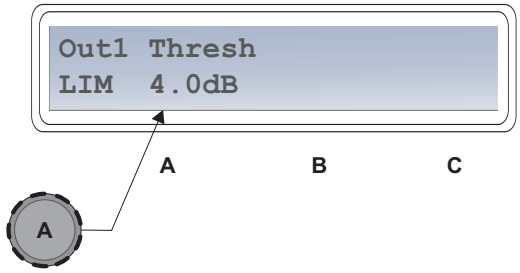
- Knob A: Frequency, 10.0Hz to 25.6kHz in variable steps
- Knob B: Slope, 6 to 12dB / octave in 1dB steps
- Knob C: Gain, +/-15dB in 0.2dB steps

The frequency is specified as point where the filter deviates by 3dB from the gain value.



- Knob A: Centre Frequency, 10.0Hz to 25.6kHz in variable steps
- Knob B: Width, display selectable, Q or BW (Bandwidth)
  BW adjustable from 0.05 to 5 octaves in variable steps
  Q adjustable from 14.2 to 0.2 in variable steps
- Knob C: Gain, +/-15dB in 0.2dB steps

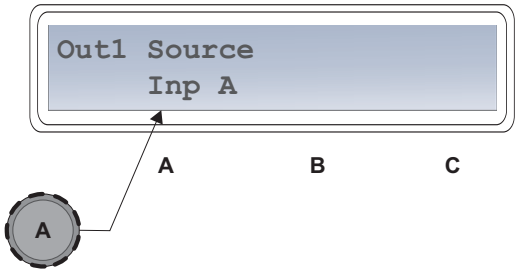
Limiters



- Knob A: Threshold, -40Bu to 20Bu in 0.2dB steps

A high performance, low distortion limiter is provided on each output. Threshold is user adjustable; all other parameters are carefully calculated dependant on configuration to provide clean and effective control of signal dynamics.

Routing



- Knob A: Output source, selectable; Input A, Input B or Sum A+B

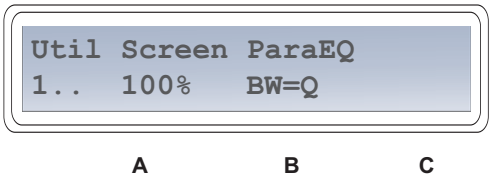
Configures the routing from input to output. This function is only available in mono format Presets.

Utilities

Two utility functions are provided to adjust screen contrast and the display units used for parametric equalisation bandwidth.

The device automatically adjusts for the variations in display contrast as the temperature of the LCD changes. The screen contrast utility control sets the base contrast of the screen and also allows optimization for a given viewing angle.

Parametric equalisation width parameters can be displayed in either 'Q' or bandwidth, expressed in octaves.



Factory Presets CRED 2-4

Location	Preset Name	Out 1	Out 2	Out 3	Out 4
1	Basic Mono	Full Range	Full range	Full Range	Full Range
2	Basic Stereo	20~5K	5K>	20~5K	5K
3	TRS-218 + TRS-212	<90.6	96.6>	<90.6	96.6>
4	TRS-218 + TRS-115	<90.6	96.6>	<90.6	96.6>
5	TRS-218 + TRS-112	<100	100>	<100	100>
6	TRS Showroom	32.0~90.6	96.6>	32.0~90.6	96.6>
7					
8					
9					
10	BR-8 + BR18B	<111	103>	<111	103>
11	BR-10 + BR-18B	<111	93.1>	<111	93.1>
12	BR-12 + BR-18B	<111	93.1>	<111	93.1>
13	BR-10 + BR-218B	<111	93.1>	<111	93.1>
14	BR-12 + BR-218B	<111	93.1>	<111	93.1>
15	BR-15 + BR-218B	<100	100>	<100	100>
16					
17					
18					
19					
20	HD-MH + HD-BB*	34.1~116	106~1K	1.02K~6.58K	6.58K>
21	HD-FR*	<100	50.8~732	780>	OFF
22	TRS-212 MONITOR	<811	811>	<811	811>
23					
24	SATURN FULL	<604	849>	<604	849>
25	SATURN + BR-218B*	<100	89.7~604	849>	OFF
26					
27					
28					
29					
30	MOON FULL	50>	OFF	50>	OFF
31	MOON CUT	100>	OFF	100>	OFF
32	MOON + MOONSUB	<125	125>	<125	125>
33	MOON + BR-18B	<125	125>	<125	125>
34	LUNARAY FULL	50>	OFF	50>	OFF
35	LUNARAY CUT	100>	OFF	100>	OFF
36	LUN x 6 + BR-18 x 4	32~100	100>	32~100	100>
37	LUN x 6 + BR-18 x 4 No 2	32~100	100>	32~100	100>
38					
39					
40					
41					
42					
43					
44					
45					

* MONO

Factory Presets 2-6

Preset	Preset Name	Out 1	Out 2	Out 3	Out 4	Out 5	Out 6
1	Basic Mono	Full Range	Full range	Full Range	Full Range	Full Range	Full Range
2	Basic Stereo	20~250	250~5K	5K>	20~250	250~5K	5K>
3	TRS-218 + TRS-212	<90.6	96.6>	OFF	<90.6	96.6>	OFF
4	TRS-218 + TRS-115	<90.6	96.6>	OFF	<90.6	96.6>	OFF
5	TRS-218 + TRS-112	<100	100>	OFF	<100	100>	OFF
6	TRS Showroom	32.0~90.6	96.6>	OFF	32.0~90.6	96.6>	OFF
7							
8							
9							
10	BR-8 + BR18B	<111	103>	OFF	<111	103>	OFF
11	BR-10 + BR-18B	<111	93.1>	OFF	<111	93.1>	OFF
12	BR-12 + BR-18B	<111	93.1>	OFF	<111	93.1>	OFF
13	BR-10 + BR-218B	<111	93.1>	OFF	<111	93.1>	OFF
14	BR-12 + BR-218B	<111	93.1>	OFF	<111	93.1>	OFF
15	BR-15 + BR-218B	<100	100>	OFF	<100	100>	OFF
16							
17							
18							
19							
20	HD-MH + HD-BB*	34.1~116	106~1K	1.02K~6.58K	6.58K>	OFF	OFF
21	HD-FR	<100	50.8~732	780>	<100	50.8~732	780>
22	TRS-212 MONITOR	<811	811>	OFF	<811	811>	OFF
23							
24	SATURN FULL	OFF	<604	849>	OFF	<604	849>
25	SATURN + BR-218B	<100	89.7~604	849>	<100	89.7~604	849>
26							
27							
28							
29							
30	MOON FULL	50>	OFF	OFF	50>	OFF	OFF
31	MOON CUT	100>	OFF	OFF	100>	OFF	OFF
32	MOON + MOONSUB	<125	125>	OFF	<125	125>	OFF
33	MOON + BR-18B	<125	125>	OFF	<125	125>	OFF
34	LUNARAY FULL	50>	OFF	OFF	50>	OFF	OFF
35	LUNARAY CUT	100>	OFF	OFF	100>	OFF	OFF
36	LUN x 6 + BR-18 x 4	32~100	100>	OFF	32~100	100>	OFF
37	LUN x 6 + BR-18 x 4 No 2	32~100	100>	OFF	32~100	100>	OFF
38							
39							
40							
41							
42							
43							
44							
45							

* MONO

Information

With the exception of HD and Lunaray Systems all settings are based on a 1:1 ratio and for use with CFU-A3 amplifiers with gain sensitivity set at 1.1v.

Delays are set for "flush fronts".

Note: Delays are **NOT** linked so care should be taken to address the **whole** system especially in 3 and 4 way systems IE: Saturn and HD when any adjustments are made.

"LUNARAY 1" is set up for a "soft" mid/high sound,

"LUNARAY 2" is set up for a "linear" sound

HD set up is based on 2 stacks each side.

Any room adjustments should be made on the input EQ only.

Technical Specification

General

Inputs	two [CRED-2-4 & CRED-2-6}
Input Impedance	> 10k Ohm Electronically balanced
Maximum Input level	+20dBu
Outputs	four [CRED-2-4] or six [CRED-2-6]
Output Impedance	<100 Ohm, ground balanced
Maximum Output Level	+20dBu into 600ohm load
Sample Rate	96kHz
Frequency Response	10Hz to 40kHz, +/- 1.0dB (filters disabled)
	10Hz to 20kHz, +/- 0.25dB (filters disabled)
THD	<0.01%, (+10dBu, 20Hz to 20kHz, 30kHz bandwidth)
Dynamic Range	>111dB (A weighted, 22kHz bandwidth)
	>108dB (un-weighted, 22kHz bandwidth)
Serial Comms Data	38.4kbaud, format: 8 data, 1 stop, no parity

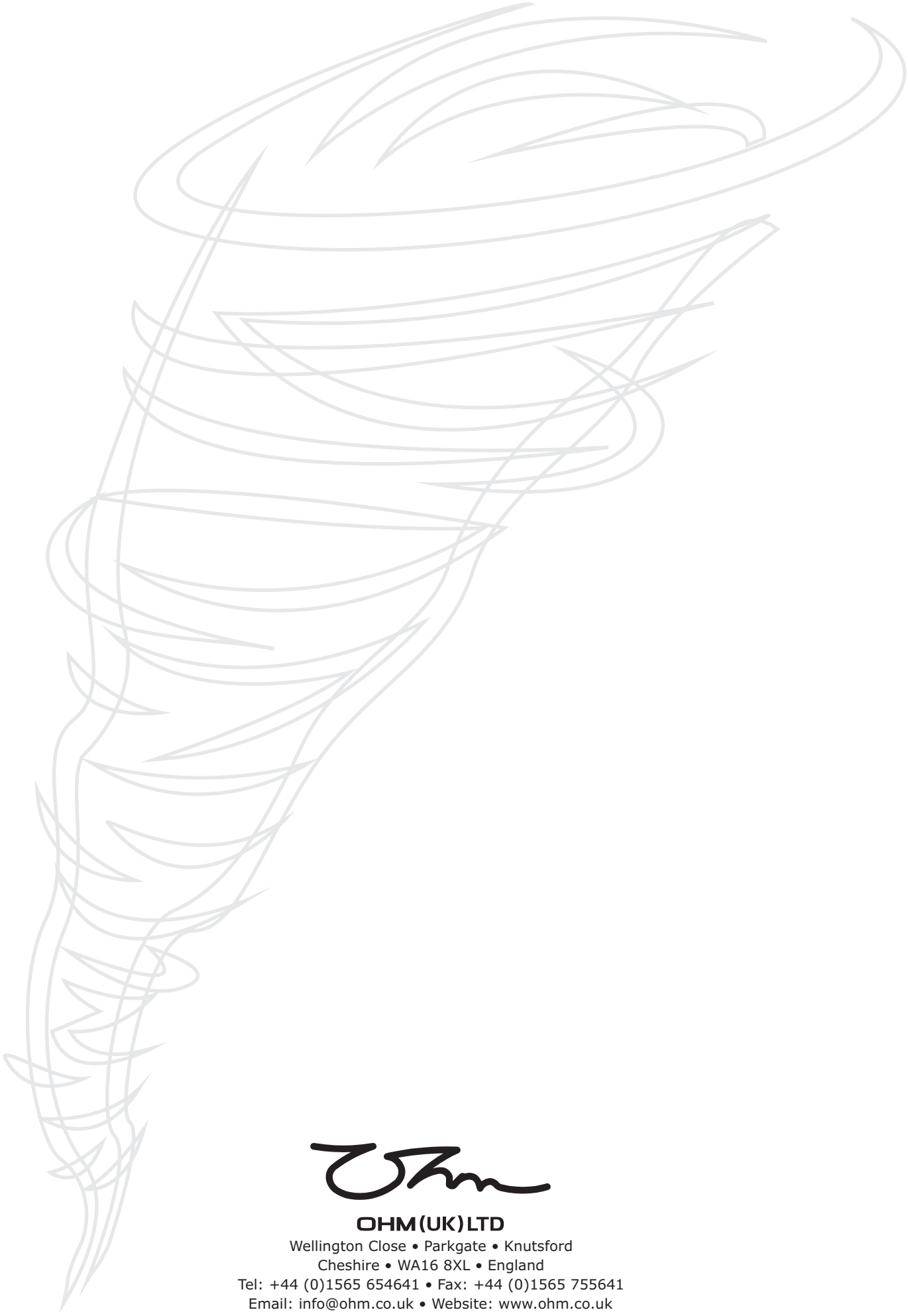
Processing

Gain	+20dB to -80dB and mute, 0.2dB steps
Output Ch. Source	Input A, Input B and SUM
HP filter frequency	Off, 10Hz to 25.4kHz, 1/36 octave steps
LP filter frequency	10Hz to 25.4kHz and off, 1/36 octave steps
LP / HP filter type	12, 18 & 24dB / octave Bessel and Butterworth, 12, 24 and 48dB / octave Linkwitz Riley and 4th or 8th order Hardman
Delay	Input 400ms, output 80ms
Limiter	High performance limiter, adjustable threshold in 0.21dB steps, automatic time constants
EQ frequency	10Hz to 25kHz, 1/36 octave steps
EQ gain	+15dB to -15dB, 0.2dB steps
EQ width	5.0 to 0.1 octaves bandwidth, 1/36 octave steps

Connectors

Audio inputs	3 pin female XLR
Audio outputs	3 pin male XLR
Serial comms	9 pin female 'D type’
Network comms	Future option
Mains	3 pin IEC
Mains Power	Universal switch-mode PSU, 85v to 250v AC, 50 / 60Hz
Consumption	< 25watts
Dimensions	Height 1.75", 44mm
	Width19", 482mm
	Depth 10", 254mm
Weight	2.7 Kgs net

NOTES



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